



OIPE

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/024,460

DATE: 03/12/2002

TIME: 09:48:28

Input Set : N:\Crf3\RULE60\10024460.raw  
 Output Set: N:\CRF3\03122002\J024460.raw

```

1 <110> APPLICANT: Berry, Alan
2     Burlingame, Richard P.
3     Millis, James R.
4 <120> TITLE OF INVENTION: PROCESS AND MATERIALS FOR PRODUCTION OF GLUCOSAMINE
5 <130> FILE REFERENCE: 3161-18-C1
7 <140> CURRENT APPLICATION NUMBER: 10/024,460
8 <141> CURRENT FILING DATE: 2001-12-17
10 <150> PRIOR APPLICATION NUMBER: EARLIER APPLICATION NUMBER: 09/115,475
W--> 11 <151> PRIOR FILING DATE: EARLIER FILING DATE: 1998-07-15
13 <150> PRIOR APPLICATION NUMBER: EARLIER APPLICATION NUMBER: 60/035,494
W--> 14 <151> PRIOR FILING DATE: EARLIER FILING DATE: 1997-01-14
16 <160> NUMBER OF SEQ ID NOS: 31
17 <170> SOFTWARE: PatentIn Ver. 2.0
19 <210> SEQ ID NO: 1
20 <211> LENGTH: 29
21 <212> TYPE: DNA
22 <213> ORGANISM: Artificial Sequence
23 <220> FEATURE:
24 <223> OTHER INFORMATION: Description of Artificial Sequence:primer
25 <400> SEQUENCE: 1
26     cggctccca tgtgtgaaat tttggcgcc          29
28 <210> SEQ ID NO: 2
29 <211> LENGTH: 34
30 <212> TYPE: DNA
31 <213> ORGANISM: Artificial Sequence
32 <220> FEATURE:
33 <223> OTHER INFORMATION: Description of Artificial Sequence:primer
34 <400> SEQUENCE: 2
35     ctcttagagcg ttgatattca gtcaattaca aaca          34
37 <210> SEQ ID NO: 3
38 <211> LENGTH: 20
39 <212> TYPE: DNA
40 <213> ORGANISM: Artificial Sequence
41 <220> FEATURE:
42 <223> OTHER INFORMATION: Description of Artificial Sequence:primer
43 <400> SEQUENCE: 3
44     atggatgagc agacgatggt          20
46 <210> SEQ ID NO: 4
47 <211> LENGTH: 19
48 <212> TYPE: DNA
49 <213> ORGANISM: Artificial Sequence
50 <220> FEATURE:
51 <223> OTHER INFORMATION: Description of Artificial Sequence:primer

```

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/024,460

DATE: 03/12/2002  
TIME: 09:46.28

Input Set : N:\Crf3\RULE60\10024460.raw  
Output Set: N:\CRF3\03122002\J024460.raw

```

52 <400> SEQUENCE: 4
53     cctcgaggtc gacggatc
55 <210> SEQ ID NO: 5
56 <211> LENGTH: 18
57 <212> TYPE: DNA
58 <213> ORGANISM: Artificial Sequence
59 <220> FEATURE:
60 <223> OTHER INFORMATION: Description of Artificial Sequence:primer
61 <400> SEQUENCE: 5
62     tggatgagca gacgatgg
64 <210> SEQ ID NO: 6
65 <211> LENGTH: 20
66 <212> TYPE: DNA
67 <213> ORGANISM: Artificial Sequence
68 <220> FEATURE:
69 <223> OTHER INFORMATION: Description of Artificial Sequence:primer
70 <400> SEQUENCE: 6
71     tccgtcacag gtattttttt
73 <210> SEQ ID NO: 7
74 <211> LENGTH: 17
75 <212> TYPE: DNA
76 <213> ORGANISM: Artificial Sequence
77 <220> FEATURE:
78 <223> OTHER INFORMATION: Description of Artificial Sequence:primer
79 <400> SEQUENCE: 7
80     agctgcgtgg tgcgtac
82 <210> SEQ ID NO: 8
83 <211> LENGTH: 18
84 <212> TYPE: DNA
85 <213> ORGANISM: Artificial Sequence
86 <220> FEATURE:
87 <223> OTHER INFORMATION: Description of Artificial Sequence:primer
88 <400> SEQUENCE: 8
89     ggaccgtgtt tcagttcg
91 <210> SEQ ID NO: 9
92 <211> LENGTH: 17
93 <212> TYPE: DNA
94 <213> ORGANISM: Artificial Sequence
95 <220> FEATURE:
96 <223> OTHER INFORMATION: Description of Artificial Sequence:primer
97 <400> SEQUENCE: 9
98     gccgtggcga tcagtac
100 <210> SEQ ID NO: 10
101 <211> LENGTH: 17
102 <212> TYPE: DNA
103 <213> ORGANISM: Artificial Sequence
104 <220> FEATURE:
105 <223> OTHER INFORMATION: Description of Artificial Sequence:primer
106 <400> SEQUENCE: 10

```

RAW SEQUENCE LISTING  
PATENT APPLICATION: US/10/024,460

DATE: 03/12/2002  
TIME: 09:48:28

Input Set : N:\Crf3\RULE60\10024460.raw  
Output Set: N:\CRF3\03122002\J024460.raw

107 gccaatcacc agcggac 17  
 109 <210> SEQ ID NO: 11  
 110 <211> LENGTH: 18  
 111 <212> TYPE: DNA  
 112 <213> ORGANISM: Artificial Sequence  
 113 <220> FEATURE:  
 114 <223> OTHER INFORMATION: Description of Artificial Sequence:primer  
 115 <400> SEQUENCE: 11 18  
 116 atggtttccc gctactgg  
 118 <210> SEQ ID NO: 12  
 119 <211> LENGTH: 18  
 120 <212> TYPE: DNA  
 121 <213> ORGANISM: Artificial Sequence  
 122 <220> FEATURE:  
 123 <223> OTHER INFORMATION: Description of Artificial Sequence:primer  
 124 <400> SEQUENCE: 12 18  
 125 gaaccaaggt aacccagc  
 127 <210> SEQ ID NO: 13  
 128 <211> LENGTH: 7408  
 129 <212> TYPE: DNA  
 130 <213> ORGANISM: Escherichia coli  
 131 <220> FEATURE:  
 132 <221> NAME/KEY: RBS  
 133 <222> LOCATION: (1240)..(1245)  
 134 <220> FEATURE:  
 135 <221> NAME/KEY: promoter  
 136 <222> LOCATION: (1165)..(1181)  
 137 <220> FEATURE:  
 138 <221> NAME/KEY: conflict  
 139 <222> LOCATION: (2509)..(2510)  
 140 <400> SEQUENCE: 13  
 141 gaattgatcc cgtcgttta caacgtcggt actggaaaa ccctggcggtt acccaactta 60  
 142 atcgccttgc agcacatccc ctttcgcga gctggcgtaa tagcgaagag gccccaccg 120  
 143 atcgcccttc ccaacagttg cgcagcctga atggcgaatg ggcgtttgcc tggttccgg 180  
 144 caccagaagc ggtggccgaa agctggctgg agtgcgatct tcctgaggcc gatactgtcg 240  
 145 tcgtcccttc aaactggcag atgcacggtt acgtgcgcc catctacacc aacgtaacct 300  
 146 atccattttac ggtcaatccg ccqtttgttc ccacggagaa tccgacgggt tgttactcgc 360  
 147 tcacattttaa tggatgaa agctggctac aggaaggcca gacgcaatt atttttgatg 420  
 148 gcgttaactc ggcgtttcat ctgtggtgca acgggcgtg ggctggttac ggccaggaca 480  
 149 gtcgtttgcc gtctgaattt gacctgagcg cattttacg cgccggagaa aaccgcctcg 540  
 150 cggtgatggc gtcgttgg agtgcacggca gttatctgga agatcaggat atgtggcgga 600  
 151 tgagcggcat ttccgtgac gtctcggtc tgcataaacc gactacacaa atcagcgatt 660  
 152 tccatgttgc cactcgctt aatgtatgatt tcagccgcgc tgtactggag gctgaagtgc 720  
 153 agatgtgcgg cggatgtcyt gactacatc gggtaacagt ttctttatgg cagggtgaaa 780  
 154 cgcaggtcgc cagggcacc ggcgtttcg gcggtgaaat tatcgatgag cgtgtgggtt 840  
 155 atgcgcgatcg cgtcacaacta cgtctgaacg tcgaaaaccc gaaactgtgg agcggcggaaa 900  
 156 tcccgaaatct ctatcggtc gttgttgcac tgcacaccgc cgacggcacc ctgattgaag 960  
 157 cagaaycctg cgtatgtcggt ttccgcqagg tqcggattga aaatggtctg ctgctgctga 1020  
 158 acggcaagcc gttgtcgatt cgaggcgta accgtcacga gcatcatct ctgcatqgtc 1080

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/024,460

DATE: 03/12/2002

TIME: 09:48.28

Input Set : N:\CrF3\RULE60\10024460.raw

Output Set: N:\CRF3\03122002\J024460.raw

159 agtcatgga tgagcagacg atgggcagg atctccaccg cggggcgcc cgctcttagaa 1140  
 160 ctatggatc tcgatcccc gaaattaata cgactcacta taggggaaatt gtgagcgat 1200  
 161 aacaattccc ctctagaaat aattttgttt aactttaaga aggagatata ccatgtgtgg 1260  
 162 aattttggc gcgatcgcgc aacgtgatgt agcagaaaatc ctcttgcgg gtttacgtcg 1320  
 163 tctggaaatac cgcggatatg actctgcggg ttgtggcggtt gttgatgcgg aaggtcatat 1380  
 164 gacccgcctg cgtcgccctg gtaaaagtcca gatgctggca caggcagcgg aagaacatcc 1440  
 165 tctgcacggc ggcactggta ttgctcacac tcgctggcg acccacgggtg aacccatcaga 1500  
 166 agtgaatgcg catccgcattt ttcgtgaaca cattgtgggt gtgcataacg gcatcatcga 1560  
 167 aaaccatgaa ccgcgtcggt aagagctaa agcgcgtggc tatacctcg tttctgaaac 1620  
 168 cgacaccgaa gtgattgccc atctgggtaa ctgggagctg aaacaaggcg ggactctgcg 1680  
 169 tgaggccgtt ctgcgtgcta tcccgcacgt gcgtgtgcg tacggtacag tgatcatgga 1740  
 170 ctccgcgtac ccggatacc tgcgtggcg acgttctggt agtccgctgg tgattggct 1800  
 171 ggggatggc gaaaacttta tcgcgttgcg ccagctggc ctgttgcgg tgaccgcgt 1860  
 172 ctttatcttc cttaagagg gcgatattgc gggaaatcact cgccgttcgg taaacatctt 1920  
 173 cgataaaaact ggcgcggaa taaaacgtca ggatatcga tccaatctgc aatatgacgc 1980  
 174 gggcgataaa ggcatttacc gtcactacat gcagaaagag atctacgaac agccgaaacgc 2040  
 175 gatcaaaaaac acccttaccg gacgcattacg ccacggtcag gttgatttaa gcgagctggg 2100  
 176 accgaacgcg gacgaactgc tgtcgaaggt tgacatatt cagatctcg cctgtggta 2160  
 177 ttcttataac tccgttatgg ttcccgcata ctgggttgcg tgcgttagcgt gtattccgtg 2220  
 178 cgacgtcgaa atcgccctcg aattccgcata tcgcaatctt gccgtgcgtc gtaacagect 2280  
 179 gatgatcacc ttgtcacagt ctggcgaaac cgccgatacc ctgggtggcc tgcgtctgtc 2340  
 180 gaaagagctg ggttacctt gttcaactggc aatctgtaa gttccgggtt ctctctgg 2400  
 181 ggcgcgaaatcc gatctggcgc taatgaccaa cgcgggtaca gaaatggcg tggcatccac 2460  
 182 taaaggatcc accactcagt taactgtgt gttgatgtcg gtggcgaagc tgtctcgct 2520  
 183 gaaaggctcg gatgcctcca ttgaacatga catcgatcgat ggtctgcagg cgctggcgag 2580  
 184 ccgtattqag cagatgtgt ctcaaggacaa acgcattgaa ggcgtggcag aagatttctc 2640  
 185 tgacaaacat cacgcgtgt tcctggccg tggcgtacg taccacatcg cgctggaaagg 2700  
 186 cgcatgttgcg ttgaagaga tctcttacat tcacgtgaa gcctacgtcg ctggcgaact 2760  
 187 gaaacacggt ccgtggcgc taattgtgc cgatatgccc gttattgtt ttgcaccgaa 2820  
 188 caacgaattt ctggaaaaac taaaatccaa cattgaagaa gttcgcgcgc gtggcggtca 2880  
 189 gttgtatgtc ttgcggatc aggatgcggg tttttaagt agcgataaca tgcacatcat 2940  
 190 cgagatgcgg catgtggaaag aggtgattgc accgatcttc tacaccgttc cgctgcagct 3000  
 191 gctggcttac catgtcgccg tgatcaaagg caccgacgtt gaccagccgc gtaacctggc 3060  
 192 aaaatcggtt acgggttgcg aataatggc tgccctgcgt aagcggggca ttttttttcc 3120  
 193 ttttatgttt ttaatcaaac atccgtccaa ctccatgtga caaacgtca tcttcggcta 3180  
 194 ctttttctct gtcacagaat gaaaattttt ctgtcatctc ttgcgttattat atgtttgtaa 3240  
 195 ttgactgaat atcaacgcctc tagaggggct agagcggccg ccaccgggtt ggagctccgt 3300  
 196 cgacaagctt atcgataccg tcgaccicgaa gggggggccc gttaccgagg acgcgttcga 3360  
 197 ataaataccgt gtgacggaaag atcacttcgc agaataaata aatctgggt tccctgttg 3420  
 198 taccggaaag ccctggccaa acttttggcg aaaaatggac gttgatcgcc acgtaagagg 3480  
 199 ttccaacttt caccataatg aaataagatc actaccggcc gtatttttt agttatcgag 3540  
 200 attttcggaa gctaagggaaatgaa gaaaaaaatc actggatata ccaccgttga 3600  
 201 tatatcccaa tggcatgtga aagaacattt tgaggcattt cagtcgttgc ctcaalgtac 3660  
 202 ctataaccat accqtcagc tggatattac ggcctttta aagaccgtaa agaaaaataaa 3720  
 203 gcacaagttt tatccggct ttattccat tcttgcggcc ctgtatgtatc ctcatccgaa 3780  
 204 attccgtatg gcaatggaaag acgggtgagct ggtgatgtgg gatagtgttc accctgttta 3840  
 205 caccgttttc catgaccaaa ctgaaacgtt ttcatcgctc tggagtgaat accacgacga 3900  
 206 tttccggcag tttctacaca tatattcgtca agatgtggcg ttttacgggtt aaaaacctggc 3960  
 207 ctatccctt aaagggttta ttgagaatat gtttttcgtc tcaaccatc cctgggttag 4020

## RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/024,460

DATE: 03/12/2002

TIME: 09:46:26

Input Set : N:\Crf3\RULE60\10024460.raw

Output Set: N:\CRF3\03122002\J024460.raw

208 tttcaccagt tttgatttaa acgtggccaa tatggacaac ttcttcgccc ccgtttcac 4080  
 209 catggcaaa tattatacgc aaggcgacaa ggtgctgatg ccgctggcga ttcaggttca 4140  
 210 tcatacggtt tgtgatggct tccatgtcg cagaatgtt aatgaattac aacagtactg 4200  
 211 cgatgagtgg cagggcgggg cgttaatttt ttaaggcagt tattggtgcc cttaaacgcc 4260  
 212 ttgtctacy cctgaataag tgataataag cggatgaatg gcagaaattc ggacgcgtca 4320  
 213 attcgagctc ctgcactgga tggcggcgtt gcatggtaag ccgctggca gcggtgaagt 4380  
 214 gcctctggat gtcgctccac aaggtaaaca gttqattgaa ctgcctgaac taccgcagcc 4440  
 215 ggagagcgcc gggcaactct ggctcacagt acgcylayig caaccgaacg cgaccgcatt 4500  
 216 gtcagaagcc gggcacatca gcgcctggca gcagtggcgt ctggcggaaa acctcagtgt 4560  
 217 gacgctcccc gccgcgtccc acggccatccc gcatctgacc accagcgaaa tggattttt 4620  
 218 catcgagctg gtaataaagc gttggcaatt taaccgccag tcaggcttcc tttcacagat 4680  
 219 gtggattggc gataaaaaaa aactgctgac gccgctgcgc gatcagttca cccgtgcacc 4740  
 220 gctggataac gacattggcg taagtgaagg gacccgcatt gaccctaacg cctgggtcga 4800  
 221 acgctggaa gcgccggcc attaccaggc cgaagcagcg ttgttgcagt gcacgcaga 4860  
 222 tacacttgcg gatqcggtgc tgattacgac cgctcacgcg tggcagcattt agggaaaaac 4920  
 223 ctatatttac agccggaaaaa cctaccggat ttagtggatg ggtcaaattgg cgattaccgt 4980  
 224 tgatgtgaa gtggcgagcg atacaccgc tccggcggg attggcctga actgcacgt 5040  
 225 ggccgcggta gcagagcggg taaaactggct cggatlaggg cgcgaagaaa actatcccg 5100  
 226 ccgccttact gccgcctgtt ttgaccyctg ggtatgcctt ttgtcagaca tggatcccc 5160  
 227 gtacgtcttc ccgaggcgaaa acggctcgcc ctgcggacg cgcaatttg attatggccc 5220  
 228 acaccagtgg cgccggcact tccagttcaa catcagccgc tacagtcaac agcaactgt 5280  
 229 gggaaaccgc catcgccatc tgctgcacgc ggaagaaggc acatggctga atatcgacgg 5340  
 230 tttccatatg cggtgtgaaa taccgcacag atgcgttaagg agaaaataacc gcatcaggcg 5400  
 231 ctcttcgcgt tcctcgctca ctgactcgct gcgcctggc gttcggctgc ggcgagcgg 5460  
 232 atcagctcac tcaaaggccg taatacggtt atccacagaa tcaggggata acgcaggaaa 5520  
 233 gaacatgtga gcaaaaggcc agcaaaaggc caggaacgcg aaaaaggccg cggtgtggc 5580  
 234 gttttccat aggctccgccc cccctgacga gcatcacaaa aatcgacgt caagtcagag 5640  
 235 gtggcgaaac ccgacaggac tataaagata ccaggcggtt cccctggaa gctccctcg 5700  
 236 gcgcctccct gttccgaccc tgccgcttac cggataacctg tccgccttc tccctcg 5760  
 237 aagcgtggcg ctttcataat gtcacgcgt taggtatetc agttcggtgt aggtcggtc 5820  
 238 ctccaagctg ggctgtgtgc acgaaccccc cgttcagccc gaccgctgcg cttatccgg 5880  
 239 taactatcg tttgagtcac acccggttaag acacgactta tcgcaactgg cagcagccac 5940  
 240 tggtaacagg attacgagcg cgaggtatgt aggcgggtgt acagagttt tgaagtgg 6000  
 241 gcctaactac ggctacacta gaaggacagt atttggata tcgctctgc tgaagccagt 6060  
 242 taccttcgga aaaagatgg gtagctttg atccgcacaa caaaccaccc ctggtagccg 6120  
 243 tggttttttt gtttgcagc agcagattac gcgcagaaaa aaaggatctc aagaagatcc 6180  
 244 ttgtatctt tctacgggtt ctgacgcgtca gtggacgcgaa aactcacgtt aaggatttt 6240  
 245 ggtcatgaga ttatcaaaaa gatcttcac cttagatctt taaaattaaa aatgaagttt 6300  
 246 taaatcaatc taaagtatatt atgagtaaac ttggctgtac agttaccaat gcttaatcag 6360  
 247 tgaggcacct atctcagcga tctgtctatt tcgttcatcc atagttgcct gactccccgt 6420  
 248 cgtgttagata actacgatac gggagggtt accatctggc cccagtctg caatgatacc 6480  
 249 gcgagaccca cgctcacccg ctccagattt atcagcaata aaccagccag ccggaaaggcc 6540  
 250 cgagcgcaga agtggctctg caacttttac cgccctccatc cagtcttata attgttgcgg 6600  
 251 ggaagctaga gtaagtatgtt cgcccgatcaa tagttgcgc aacgttgcgtt ccattgctac 6660  
 252 aggcategtg gtgtcacgtc ctgcgttttgcg tttttttttt ttcagctccg gttcccaacg 6720  
 253 atcaaggcga gttacatgtat ccccatgtt gtgcacaaaaa gcggtagtgc ctttcggc 6780  
 254 tccgatcggtt gtcagaagta agttggccgc agtggatca ctatggta tggcagcact 6840  
 255 gcataattct ttactgtca tgccatccgt aagatgcgtt tctgtgactg gtgagtaact 6900  
 256 aaccaagtca ttctgagaat agtgtatgcg gcgaccgagt tgctcttgcg cgqcgtaat 6960

**VERIFICATION SUMMARY**

PATENT APPLICATION: US/10,024,460

DATE: 03/12/2002

TIME: 09:48:29

Input Set : N:\Crf3\RULE60\10024460.raw

Output Set: N:\CRF3\03122002\J024460.raw

L:11 M:256 W: Invalid Numeric Header Field, Wrong Prior FILING DATE:YYYY-MM-DD

L:14 M:256 W: Invalid Numeric Header Field, Wrong Prior FILING DATE:YYYY-MM-DD